

the whole breast was of a scirrhus hardness. It had been open several months, and there had been an induration in her breast several years. Her constitution was much affected, and she was confined to her room, and the principal part of the time to her bed. The pain in her breast was intolerably severe. The stench was so great in her room that her attendants could not bear to stay with her. At the time I saw her she was taking large doses of laudanum to alleviate her distress. As I had no expectation of curing her, I advised Dr. Deane, merely for palliatives, to wash the breast freely with salt and water, to make use of a carrot poultice, sprinkled with powdered conium, and after the stench was removed, to use the conium plaster, and at the same time to put her upon the internal use of extract of conium, until constitutional symptoms were induced. On the 12th of October, I saw Dr. Deane, who informed me to my great surprise, that Mrs. S. had completely recovered, and that her breast was entirely healed, and as smooth as his hand. The next summer I was called to visit a patient in Colrain, and called on Mrs. S. and found her perfectly well.

I have since used the conium externally and internally with complete success in the case of Mr. H. N. of Greenfield, who, for a number of months, had been affected with scrofulous indurations about the glands of his neck.

*Deerfield, Mass. Sept. 1831.*

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ART. VII. *Reports of Cases treated at the Baltimore Alms-house Infirmary.* By THOMAS H. WRIGHT, Physician to the Institution.

CASE I.—*Vaginal tubercle.*—The following case presents a specimen, uncommon for its magnitude, of that form of morbid growth generally located at the outlets of the cavities, upon or near the meeting line of the mucous membrane and the common skin. A young woman, J. Griffin, about twenty years of age, represented to belong to the unhappy class of female profligates, was brought to the Baltimore Alms-house. The persons who delivered her to the charge of the institution gave no account of the cause, manner, or other circumstances of her illness. Its nature was inferred from her course of life, and on that presumption she had been placed in the syphilitic ward for females. On the day after admission the case came under examination, presenting the following signs. Form much wasted, face sallow and wan, deep hectic flush on both cheeks, eyes in-

jected, expression wild and frightened, lips dark red and parched, fauces inflamed, gums spongy and foul, tongue swollen, strong flesh-colour, surface dry, polished. Breathing was hurried, skin hot, pulse small, and past counting with precision. The intellect was disordered, perceptions confused, mind agitative, with a cast of delirious wandering in all the mental operations.

In addition to the symptoms noted, there was an odour from the person of the patient which revealed the existence of some local affection in the sphaceloid state. To inquiry respecting the condition of the external sexual organs, it was communicated by the nurse of the ward, that there existed something about the female parts of uncommon appearance, and in a very foul state. On inspection, a pyriform tumour of great size was observed; its larger extremity below, and suddenly contracted above into a neck or peduncle, connecting it with the left side of the vagina, which was dragged out or prolonged unnaturally by the weight of the pendant mass. The tumour was regular in form, of firm texture, occupied all the upper space between the thighs, and from its size and solidity was supposed to be from five to six pounds in weight. The general aspect of the mass gave the representation of a two-fold manner of development. A regular fibriform tumour seemed to have been first produced, and afterwards a dense crop of small tubercles of the verrucous kind, appeared to have sprouted from the surface of the primary body, and now completely and uniformly overspread it. These surface vegetations were about the size of a filbert, diminishing in bulk toward the root or neck of the tumour. They were round, coarsely granular on the exterior, and bore no small resemblance to our common blackberry in the unripe state. The lower extremity of this great mass, for about one-fourth of its whole length, was in the sphaceloid condition; smell putrescent, colour black red, cuticle desquamated, free sanious exudation, circular line of demarcation to sphacelus, dead structure somewhat shrivelled and collapsed.

By the copious issue of sanies with some hæmorrhage from the sphaceloid extremity of the tumour, the whole mass was blood-stained, so as to disguise its real character and cause it to appear as belonging to the tumours of fungoid constitution, for one species of which, (the cancliflower,) it was at first mistaken. Examination subsequent to the cleansing of the parts showed the whole appearance as above described, and corrected the erroneous opinion first formed. It was now evident that the tumour was a magnified specimen of that form of excrescence, which, under the denomination *verruca*, or warty tumours, infest the vestibulum of the female parts of genera-

tion. The present example of that kind of production was not only uncommon for its magnitude, but possessed characters of solidized organization, belonging rather to the fleshy tubercle than to the verrucæ proper. Its locality, its covering of coarse skin, and above all, its surface studded with hundreds of minor warty excrescences, pointed out its relation to that class of tumours, and in connexion with its size and solidity seemed to indicate in the present specimen a combination of the tubercle and the wart. The mass appeared abundantly vascular, as exhibited both by a tendency to somewhat free hæmorrhage, and the detection by pressure on the neck of the tumour of bold pulsation at several points.

The case was at first in no condition for immediate resort to operation. The serious exhaustion of the patient on admission rendered attention mainly and urgently necessary to the constitutional state. To tranquillize and sustain were the indications of the moment, to which removal of the local evil was a remote and secondary consideration; the morbid aspect of the tumour was the consequence, not the occasion, of intense constitutional disorder, developed from other and unknown causes. The tumour was directed to be enveloped in cloths charged with the spirit lotion, applied warm; the general means, small cordial anodynes, (spt. lav., ammoniæ, and tinct. opii,) in effervescing draughts, frequently exhibited until they produced their calming influence. These were aided by spunging with cool spirits the abdomen. Diet light and moderately cordial; rice-jelly, with small addition of wine.

In a few days the aspect of the case was sensibly bettered. Sleep had been procured; the tumult of mind and body was allayed; inclination for nourishment a little restored; strength somewhat revived. Advantage was taken of this state, to remove the now completely dead and offensive portion of the tumour. It was separated by a pair of large strong scissors—but the division was not easily effected, requiring much force and numerous cuts. The substance was tough and harsh, dividing like leather, or raw hide, in the macerated state.

On the decline of fever, and of the signs of gastro-intestinal irritation, the patient was put on the use of bark infusion with the mineral acid, and diet reinforced. Her improvement, seconded by a constitution naturally good, was constant and rapid. The remains of the tumour, still equal nearly in bulk to a small child's head, assumed the hue and actions of healthy structure; the point from which the dead portion was removed, partly by section, and in part by spontaneous separation, contracted, and was closing in by active

icatization. The tumour now presented the following character and connexions:—The mass external to the vestibulum, as before described, was a large oval body, solid, inelastic, and heavy, covered by an extra growth of innumerable small tumours, or tubercles, of the filbert size; colour of the tumour white, resembling common integument, only very coarse, or papular. The neck of the tumour was about two inches long, three broad, (from above downwards,) and one inch thick; its inner face, next the ostium vaginæ, was smooth, like the mucous membrane of that canal on the stretch; the external side like common skin. The labium majus of the left side, with its common covering, was on the outer side of the neck of the tumour; the nymphæ was distinguishable on the inner surface of the same part; the latter body very small, a transverse ridge merely, scarcely elevated above the plain of the surface. The root of the tumour thus appeared to protrude from between the labium and nymphæ of the left side, coming out betwixt the ramus pubis on one side, and the vaginal expansion on the other. The flattened, but thick root of the tumour, could be traced some extent up the left side of the vagina, covered by the wall of that canal, but its exact place of origin or termination above the ramus pubis could not be distinguished.

The whole mass was removed by operation, in one of the modes commonly employed for excision of such tumours. To prevent much loss of blood, as well as with the purpose of dividing the neck of the tumour as high as possible, a strong needle, armed with a coarse double ligature, was pushed through the centre of the root close upon the ramus pubis. The ligatures were tied above and below, pressing them well toward the base at the time of drawing the loop. The section was made with a scalpel, cutting across the neck just without the ligatures. Notwithstanding the means employed to obviate hæmorrhage, the dash of blood from the face of the cut was profuse; the ligatures did not effectually compress the portions included, and it was necessary to command the bleeding by firm pressure with the fingers against the ramus pubis within, until the vessels could be taken up. This part of the operation was tedious and difficult, in consequence of the alarm and struggles of the patient, and great retraction of the root of the tumour within the vestibulum. By the tenaculum and the needle, where the latter suited best, the hæmorrhage was controlled without immoderate loss of blood. There was but little inflammation or swelling after the operation. The young woman regained her health rapidly, and in six weeks was perfectly well; reported by the nurse of the ward to be without any thing unnatural about the parts from which the tumour had been removed.

CASE II.—*Glandular Tissue, Indurescence, Suppuration, and Excrescence of the Testicle, mistaken for Carcinoma.*—A young man, twenty-five years of age, wagoner by occupation, entered the Baltimore Alms-house with disease of the testicle, ensuing, by his report, to severe and neglected gonorrhœa. State of parts on admission: left testis enlarged to thrice its natural size, hard in places, inelastic, not tender to moderate pressure; surface of the gland rough and fibrous, as if traversed by numerous chords or thin bands; scrotum dark brown colour, contracted close around testis, at many points indented by union with the membranes and gland. From the whole front of the testis protruded a mass of the size of a pullet's egg, of coarse, granular substance, secreting profusely a mixture of sanies and pus. The base of the excrescence was broad and hard, its body elevated, flattened on the top—whole bulk exceeding the size of the testicle; scrotum around the base of the vegetation thick, adherent, and callous feeling. By pressure on the parts, a soft pulpy matter could be made to ooze out at some points where union of the scrotum to the base of the excrescence was incomplete. The funis of the left testicle was thick as a finger, knotted and hard; superficial lymphatics of both groins enlarged; cellular tissue, same seat condensed; inguinal glands swelled and tender to touch. Right testis retracted high, very little altered from natural state, except by adhesion of scrotum, vaginalis, &c. at a few points. Duration of the local disease now, by account of the patient, eleven weeks; parts had never been very painful; occasional sense of stinging and burning in the part—the chief unpleasant feeling.

The man represented the affection of his testicle to have commenced, (while he had gonorrhœa,) by general enlargement of the gland, followed by a dark red swelling on the front part, which slowly gathered, burst, discharged a reddish matter for some time, then large granulations shot out from the cavity of the abscess, and continued to grow and overspread the gland, as they appeared at the time of his admission into the house. The parts had been constantly irritated by riding on horseback in his employment as teamster. The personal appearance and condition of the subject of this affection was strongly marked by signs of constitutional disorder. Form, naturally stout, was considerably emaciated; skin flaccid and sallow; face contracted, look desponding; tongue furred; appetite indifferent; bowels laxative; distressed by flatulence; pulse small and quick; surface dry; sleep irregular and uncomfortable. By all the signs, local and constitutional, the disease of the testicle seemed to be represented as one of the malignant class of tumours, fungus hematodes, or medul-

lure. Operation in prospect was adverted to, as soon as by rest, regulated diet, and suitable alterative medicines, due preparation of the system was accomplished. The patient was put on the use of Plummer's pill reduced in strength, first with opium added for loose bowels, and free use of the diet drink; regimen, boiled milk, rice, and bread. The part was treated by simple fomentation and poultice.

The general circumstances of this case were so much mended after some time in hospital, (end of second week,) that the patient both looked and felt very sensibly better than when admitted; his complexion, spirits, appetite, and strength, were greatly improved. The local disease was not materially altered, otherwise than by greater cleanness, a better secretion, more poriform, from the ulcerous surface; better colour of the fungous growth, and less soreness of the parts, particularly of the inguinal indurations. These changes, slight as they were, taken in connexion with the obvious melioration in the general functions, under mere rest and simple treatment, seemed so strongly to contradict the presumption of malignancy in the disease of the part, that as soon as they were displayed in an unequivocal manner, I did not hesitate to recal the opinion first expressed, and to deprecate the contemplated resort to operation, as unwarranted by the present aspect and circumstances of the case. The local disease was now exhibited as essentially the result of irritable inflammation, aggravated constantly by manner of life, exposure, and neglect. It was noticed as probable, also, that the strumous diathesis was present, and concurred to complicate the affection, both by additional irritability in the habit, and the peculiar tendency it is known to impart, to conversions of textures not belonging to the common forms of inflammation. Hence the chronic induration of the tissues, partial. (tuberculoid,) suppurative degenerescence, and subsequent vegetative development in the part; hence too the manner and form of sympathetic irritation and change in the neighbouring lymphatic and cellular structures.

On this pathology of the affection it was conceived highly probable, that perseverance in the same general regimen, with the steady employment of caustic to the part, would accomplish enough to exclude occasion of resort to direct surgery. By maintaining a good state of the general system, and constantly repressing the products of morbid action in the part, the irritability on which that action was sustained would be extinguished, and a healthy process be set up for repair of the organization. Time realized this expectation. The fungus was touched over daily with the solid nitras argenti, and after-

wards wrapped in poultice. The application gave little pain, and did not excite inflammation. After a few days' use of the caustic, the bulk of the morbid growth was sensibly lessened; continued employment of it brought the tumour down to near the level of the skin, while the discharge from its surface became good, and the margin of scrotum around the base of excrescence softened, contracted, and was cicatrizing.—In a month the mass of vegetation from the testis was demolished, and the general health of the patient reëstablished. As the excrescence wasted, the enlargement of the body of the testicle was found to reduce in a gradual manner, and to resume something of its natural form; its irregular hardness and fibrous feel also diminished. The treatment by caustic was continued as long as any tendency to excrescence was apparent; the poultice was laid aside when the marks of inflammation were dissipated, substituted by dressings with ungt. oxyd. hyd. rob. The part finally cicatrized, leaving the body of gland enlarged in some degree, but without evident signs of disease. The secondary affection of the lymphatics, ganglions, and cellular tissue of the groins, subsided so as to be inconsiderable at the time the man left the hospital.

CASE III.—*Fibro-scarous Tissue—Osseous Conversion.*—A man, sixty-five years old, school-teacher by profession, was admitted into the Baltimore Alms-house, on account of a scrotal tumour, which had become so inconvenient as to prevent continuance in his usual occupation. The patient betrayed marks of age beyond his time of life. Form thin, skin loose and shrivelled, hair perfectly blanched; in other respects reported himself to be pretty well, had not been sickly, was not conscious of any other disease than the scrotal enlargement for which he had come into the house. The commencement of the tumour was dated by himself five years back; origin spontaneous, or without any known cause.

On examination, the scrotum was developed to a size seldom attained in mature hydrocele, but the tumour differed in shape from common enlargement by vaginal dropsy. The development was almost wholly on the left of the raphé scroti; tumour of that side obtuse conoidal, the apex below; greater diameter near the exit of the chord from the ring. The covering of the tumour, the scrotum, instead of being thick, and somewhat rugous, as is common in hydrocele, was thin, smooth, and glistening. Its thinness was quite remarkable, being scarce equal in density to the skin on the back of the hand. This attenuated integument played freely over an enclosed body; the latter so firm as to yield scarcely at all to pressure, and that only in

places, there being parts or patches of the tumour so hard as to give no sense of sinking under compression; nothing of the elasticity which was distinguishable at other points or places. After much examination by the touch, the reflection of light, &c. the tumour was made out to be a hydrcele of unusual form, and with the peculiarity of the vaginal coat studded by patches of earthy conversion. The plates of calcareous matter in the vaginal cyst were numerous, hard, and smooth on the surface next the scrotum. On the right side of the scrotum existed another tumour of much less size than the one just described. This second tumour reached only half the length of that on the left side, was about the bulk, and had very much the form of a large hen's egg, was perfectly regular and smooth on the surface, with the investing scrotum adapted closely to it, and this integument very much attenuated, as in the case of the other, or left tumour. The body contained in the right side of the scrotum was heavy for its bulk, and every where hard and unyielding to pressure. While the large tumour of the left vaginal sac was irregularly hard, and sensibly compressible in places, (the elasticity of strong membrane tightly distended,) the smaller body of the right side was equally and positively resisting at all points, and wholly unalterable in form by any force which it was deemed allowable to use. The figure of this tumour, the equal surface over which the scrotum glided smoothly, and the feeling imparted to the hand while examining it, all forcibly suggested the resemblance of an egg enclosed in a covering of skin. The lower end of the body was something largest, smaller extremity presenting to the ring. The chord could be distinctly traced entering abruptly, or attached to, the upper end of the tumour, was thin, soft, and perfectly natural, to the point where it entered, or appeared to enter, the small end of the body embraced by the scrotum.

All the marks exhibited by the tumour of the right scrotum made it plain beyond doubt, that the tunica vaginalis testes of this side had undergone complete and universal calcareous conversion. The kind of resistance to the touch was wholly different from that quality of firmness, (often very great,) possessed by hydrocele when the sac is tense and the membrane thickened. In the case before us it was positive hardness, a form unchangeable in the smallest degree at any point, and a surface uniform and equal, insomuch that the scrotum, (as before noticed,) moved over it as if having no connexion whatever with it, other than as a containing envelope. Neither of the tumours were in the least degree painful or tender to pressure, and had never caused inconvenience of any sort but by their size and weight. The space of chord which was free and pliant at the upper end of the



tumours, was sufficient for safe and convenient excision, and after due consideration, the operation, (by castration,) was judged advisable, and recommended. But when the patient understood that the relief offered him was no less than actual emasculation, his timidity, or his pride, took the alarm, and, under a privilege of going out for some purpose, he left the house, and did not return.

CASE IV.—*Muscular Tissue—Calcareous Deposit.*—Among the conversions to which the muscular tissue is liable, suppuration, indurascence, pulpy or lardaceous degeneration, &c. it has been doubted by pathologists of high authority, whether the muscular texture proper, was ever the seat of calcareous conversion, or submitted to that change commonly discriminated by the term ossification. The following case may be added to the scanty record on the affirmative side of this question, and appears to furnish, substantially, the kind of proof which the controversy calls for. Yet this case does not fill the vacancy of evidence on that part of the question which demands an instance of ossification in the muscular fibre, wholly primitive in the seat where it is found; originating in, and restricted to the muscular texture, and not produced or propagated to that organism, by extension or encroachment of the ossific process set up in other tissues, to which such a change is easy or common.

A man, about thirty years of age, was brought to the Baltimore Alms-house, January, 1831, in a state of low exhaustion, ensuing to the joint influence of long intemperance, and much exposure to the rigour of the season. The endeavours to sustain him proved ineffectual, and he died on the third day from his admission. In the examination of this patient when first brought into hospital, it was noticed that one of his legs was very much deformed by morbid enlargement, of irregular figure and singular hardness. There was extensive cicatrization on the leg, as if from former sores; but at this time the surface was no where ulcerated. After death the deformed leg became the subject of examination, and the hard enlargement, inequality, &c. of the limb, was then found to be caused by exostosis of the fibula in its whole extent. Two parallel spines, or ridges of super-ossification, were produced, from the edges of the fibula down its entire length; they were more than an inch deep, and spread outwards from their line of origin, so as to give the fibula the appearance of a long bony trough, wider at top than bottom. Between the anterior spine or ridge, and the tibia, and raised considerably above them both, appeared a bundle or tract of matter, distinct from both bones of the leg, but nearly as solid and bone-like as either in the greater

part of its extent. In places this interposed substance was made up of hard and soft matter intermingled, and at those points retained a good deal the colour, texture, &c. of muscular fibre, blended with much earthy matter. In other places, some inches in length, the structure of the part resembled an entire rough, bony body. Where the substance under consideration was least solidized, it was very much increased in bulk, forming at two or three points in the length of the leg, large knobs in a semi-converted state, thus showing the cause of the general increase of volume, as well as irregularity of form, noticed in the limb on first inspection of the case. This intermediate osseo-muscular structure was composed of all the muscles on the anterior aspect of the leg between the bones—the tibialis anticus, extensor proprius, pol. ped. extens., long. digit. ped. sc. all degenerated more or less completely into osseous matter, and fused into a complex mass.

Although it appears probable that super-ossification in the present instance was first set up by the periosteum of the fibula, and was propagated to the inter-osseous muscular tissue, yet the conversion of the muscles does not appear to have been accomplished by direct extension, or mere augmentation of earthy matter from the primary source of deposit. The semi-ossified mass of muscles was distinct and separable in its whole course from the bones of the leg, and by osseous development of the fibula inwards, had been pressed up so as to lie above them both. The stimulus or irritation to morbid secretion may have been imparted by similar action in the neighbouring tissues, but the earthy deposit amongst the muscular fibre seems to have been properly the work of its own vessels of nutrition.

CASE V.—*Vascular Tissue—Dilatation, Varix, &c.*—A middle-aged woman, long resident in the Baltimore Alms-house, and subject to epileptic attacks, presented the following abnormal developments in part of the vascular system. On the right half of the frontal bone appeared four distinct tumours, or prominences, of a soft, compressible character, and made up apparently of numerous cysts or cells communicating with each other, and thus composing one large pouch or sac—irregularly defined in its base, and lobulated on the surface. One great sac, larger than the rest, was placed near the outer angle of the eye; another occupied the midspace of the superciliary ridge, overhanging and continued upon the upper eyelid, a third stood on the top of the os frontis near the angle of junction with the right parietal, and a fourth was directly over the line of union of the internal

angular processes of the frontis, where they receive the ossa nasi, overlaying the latter bones, and deriving its covering in part from the skin of the nose. All those tumours, or pouches more properly, pulsated strongly in correspondence with the stroke at the wrist, and could all be flattened or emptied by pressure with the fingers.\* The coverings of those pouches, the common skin of the parts, was thin and delicate, apparently much attenuated and weakened by distention. Besides the greater sacs already described, numerous small risings, size of large peas or beans, were dispersed over the temporal portion of the right frontal and parietal bone, and a few of the same kind before and behind the ear. These smaller tumours also kept time with the general pulse of circulation.

The state of the arteries on the opposite sides of the neck and head, in this case, was very palpably different. Those of the left side, the common carotid and temporal, &c. felt nearly as they are found under ordinary circumstances; there was, however, some departure, both in the size and action of those vessels, from a strictly natural or common state. Their volume was more developed to the touch, their action sharper, with a very perceptible thrill or jar in the stroke, of the kind denominated aneurismatic. It was in the arteries of the right side of the neck and head, however, that all those characters of faulty state and action were strongly displayed. The common carotid was here very sensibly enlarged; its undue size and overaction palpably evident, not only to the touch, but to sight; its action uncontrolled by pressure, and the current through it attended by a thrill so bold and distinct as to impart an unpleasant grating sensation to the fingers. This peculiarity of movement became greater as the vessel was traced toward its root, and was particularly strong in the innominatum. The dilatation of the common trunk of the artery was participated by all the branches of the external carotid. The occipital, in its tract along the base of the skull, was plainly visible in form and action, and felt scarcely less in size than the little finger. This vessel, as well as the front and middle branches of the temporal, gave distinctly the thrill so remarkable in the common carotid. The general circulation in this case was every where more vivid, marked by a higher tone of action in the heart and arteries, than is common in the female habit.

\* The cysts could be depressed by the point of the fingers until something like incavation of the bone was perceived; represented by a hard, rough margin, corresponding to the outline or base edge of the tumours.

The patient's report respecting the duration of the tumours about the head, dated them back about three years; for which period also she had been subject to epileptic paroxysms. The latter had been renewed from that time at monthly intervals, more or less regular. Whether the fits of epilepsy anticipated, in point of time, the swellings on the head, was not clearly discriminated in her own recollection; she thought they had occurred much about the same time, but inclined to the opinion that she had suffered one or two attacks of epilepsy before the swellings on the head were observed. She represented herself to have been much subject to head-ache prior to occurrence of fits, or the local affection, and still suffered greatly from frequent and violent pain of the head. She complained likewise of almost constant annoyance, particularly of late, by a sense of fullness, with a peculiar irritation, in the membranes of the nostrils and palate.

The regular and strong pulsation of the whole group of tumours on the side and front head, their locality in the tract and at the terminations of the temporal artery, with the palpable enlargement and peculiar thrill in the carotid of the same side, all seemed to mark the case as one of arterial dilatation complicated with varix. The case was examined by many physicians and surgeons, who concurred in regarding it as a varicose affection of the arteries of the part, with probably something of the aneurism by anastomosis in the seat of the large pouches. The nature and tendency of the local developments, with their probable agency, if not in producing, in aggravating the epileptic concomitant, suggested a practical resort, which was deemed the proper corrective of the former, and likely at the same time to avert or mitigate the latter. Tying the common carotid was recommended as essential to the cure of the local disease, and affording a chance of arresting the epileptic paroxysms. Such a measure was also indicated by other considerations besides the prospect of relief, or the possibility of cure, it was supposed to offer. The tumours were manifestly on the increase, and the integument of those sacs already very thin, appeared too likely, at some moment, to give way suddenly, and in the absence of proper assistance, might bleed dangerously or fatally. This contingency was the more to be apprehended, inasmuch as the sacs were observed to be always greatly distended, and of deep colour, during the fits of epilepsy.

On the other hand there were considerations of a negative kind as to the success of an operation, which greatly abridged the ground of expectation or dependance on such a mean. Admitting the palpable

superaction, and the varicose state of the arteries on the right side of the head, as the possible origin of the epileptic phenomena, or if not the source of the affection, by all probability a cause of exasperation, and an impediment to its cure, was it certain, or likely, that tying one, or even both carotids, would afford sensible, or permanent relief, in the true seat of irritation and embarrassment leading to epilepsy? Was the state of superaction and dilatation confined to the external carotid distribution? or was it not greatly to be suspected, that the internal carotid branches were also the subjects of preternatural action, and probable varix enlargement. If so, the vertebral anastomotics within the head were sufficient to supply all the congestive derangement required to sustain and perpetuate the epileptic contingency.

This patient had been almost two years in the house suffering attacks of epilepsy, at intervals seldom exceeding four weeks; her general health during the time was very much the same. The only medical regimen consisted in the practice of such depletion, by general bleeding, as the health of the common functions permitted, simple diet, and abstinence from laborious employment or undue exertion. But little change was visible in the state of the patient; the tumours on the head increased more by slow dilatation and thinning of their coverings, than by very obvious augmentation in their volume or extent. Attacks of epilepsy were renewed, with various force, in different paroxysms.

In July, 1830, the patient was attacked by what at first seemed one of her usual severe head-ache's, followed by epileptic invasion—but which, instead of passing off as before, by slow revival of consciousness, &c. glided into a train of symptoms resembling profound encephalitis. She became delirious for a time, soon lethargic, and fell into deep stupor, ending in death after twelve hours duration; third day after seizure.

For the purpose of tracing the vessels, and for preservation of the parts, as a morbid specimen, it was determined to fill the arteries of the head with the common injection. A pipe was fixed in the root of the aorta, the descending trunk and the subclavians closed by ligature, and the injection passed, until from the quantity thrown up, and the distended state of the superficial vessels, the arterial system of the head was supposed to be fully injected. Although the branches of the temporal artery were filled in all its ramifications, the main purpose of the injection had wholly failed; not a particle of the injection had entered the sacs on the head, with which the artery appear-

ed to communicate freely during life, imparting the fullness and pulsation they then possessed.\* A few only of the smaller cysts in the tract of the middle temporal branch were raised up to the knotted form in which they appeared before death. The large pouches at the angle of the eye, on the orbital ridge, the top of the os frontis, and over the naso-frontal junction, were flat and empty. The total failure by the injection could only be explained on the presumption, either that the communication of the temporal branches with the cysts on the forehead had been by very small channels, which became obstructed by coagula after death, or else that the great pouches had not received their fullness and pulsation directly from the temporal branches, as was supposed. The latter conclusion appeared most probable, and at the same time pointed to the *veins* as the route of communication with the now empty cysts. This conjecture was realized on trial. When a pipe was fixed in the superficial cervical, the trunk of the facial or angular, in the neck, and the injection pushed on, in a moment every sac was swelled out to the size and shape presented in life. All the cysts were filled, the pristine form accurately developed, and the external resemblance to the living state completely restored. The whole character of the local affection now appeared to be changed. Instead of a specimen of arterial varix, or anastomotic aneurism, for one of which, (or rather a compound of both,) the case had passed with all examiners, injection appeared to have revealed an example of morbid dilatation in the venous system, anomalous by the fact of immense varicose development in the capillary series, the venous radicles of that system. It proved afterwards that the case was of complicate character; and that while the more prominent forms of vascular tumour were really in a part of the venous capillaries, the arterial series of the head had participated largely in the process, both of general and special dilatation. Definite arterial enlargement, (varix,) was as plainly marked, and scarcely less matured, in parts of the carotid distribution, as the venous varices just described. Arterial and venous developments were equiponderant.

The tumours on the forehead as now reformed by the matter of injection, were about the size of walnuts, and appeared to be made up

\* It ought to have been mentioned, in describing the cysts, that deep and strong pressure on the right carotid constantly subdued the pulsation in them, to a great degree, and when the pressure was forcible enough to shut the artery in the neck, it extinguished all movement in the sacs, though they still remained full.

by dilatation and anastomosis of the deepest subcutaneous veins; for above each tumour was spread a dense plexus of small veins, finely injected, and overlaying the tumours as a vascular arch or web. The large tumours were closely applied to the cranium, and so firmly attached in their place as to seem imbedded in the bone within the area of their base. In some of them this was found to be the fact: by pushing a common pin obliquely through the margin of the tumours, it penetrated the outer table of the cranium with great ease—the resistance by the bone not exceeding that of a piece of dried bladder; part of the cysts containing the wax were evidently inserted into the cranium as deep as the middle structure, lattice-work, of the skull. The rough and incavated feel of the bone within the limits of those tumours, which was discriminated by pressure during life, was thus explained.

The arteries of the opposite sides of the head were in a very different state. Those of the neck were enlarged on both sides, but the common trunk of the right much more voluminous than its fellow of the left.\* The most palpable inequality of size, however, in the two sets of vessels, was found in the branches of the external carotids. The right superior thyroid was as large as a crow-quill, and though the sublingual and facial were under natural size, the occipital again rather exceeded the ordinary volume of the common carotid. The temporal was more than twice the size of the same vessel on the left side, and the branches of the former exceeded those of the latter, in the same ratio, (twofold,) both in number and size: the whole right side of the head, in fact, was overspread by a coarse web of large tortuous vessels, connected by frequent anastomoses. In only one point on the surface of the head did the present state of the arteries realize the idea which had been formed of their condition during life. About the middle of the posterior temporal branch, was a tumour or knob, the size of a small marble, formed by the abrupt dilatation of the lumen of the artery, now filled up and defined by the matter of injection. This was a solitary exhibition of true arterial varix in the set of arteries which had been supposed to betray numerous and large varicose developments. The actual state, then, of the external arteries of the right side of the head was nearly universal dilatation, but that change general and equal, (proportionate,) every where, with one point only of extra or special enlargement.

\* The right carotid, one inch above the innominatum, measured one inch and five-eighths in circumference; the left, at the same point in the neck, one inch and one-eighth.

It appeared probable that the process of dilatation was not confined to the external arteries of the right half of the head. When, by removing the globes from the orbits, the ophthalmics came into view, the relative difference of size was as remarkable in them as in the superficial vessels of the two sides: the right ophthalmic was more than twice as large as the left. On examination of the vessels within the head, it was found that the morbid development was proportionally much greater in the cerebral arteries than in those of the cranium. Both the carotid and vertebral members of the great basilar circle were astonishingly enlarged. The communicans of the right side was equal to an ordinary little finger, and bulbous in three places; a knob near the carotid root of this trunk was as large as a musket-ball. The basilaris was rather more than an inch in circumference, and the right vertebral, immediately on rising up to meet its fellow, swelled out into a pouch, which, filled by the injection, was larger than any other of the tumours or knobs in the basilar series. The left communicans was enlarged, but much less so than the right, and it also exhibited points of particular or definite increment of the saccular form. Thus the arteries of the basis cerebri, besides being generally increased in size, were also eminently varicose at many points: the whole circle, and its principal branches, were singularly tortuous, anastomotic, and knotted.

The condition of the arteries of the brain confirmed the surmise about their state which, during the life of the patient, had been urged against the probability of benefit by operating on the right carotid. The extent and relations of the vascular dilatations within the head, rendered it plain that the morbid excitement, or congestions to which they were instrumental, were unsusceptible of counteraction by any means short of total interreption of all the channels by the neck. Both the carotid and vertebral members of the basilar circle were dilated and varicose, and every where accessible to the current coming in at any point of the circuit. Whether the relative greater advance in change of capacity in the arteries within the head, than in those of the external carotid system, is to be taken as proof of prior departure from the normal state by the former, can only be conjectural: neither would the settlement of that question determine whether the epileptic state of the patient was the cause or the consequence of degeneration in either set of vessels. The time of origin of such change in the cerebral arteries would remain indeterminate, and the patient herself never was able to realize whether the fits preceded the tumours on the head, or followed their appearance: she supposed them to have taken place much about the same time.



The tone of vascular action in this case had been found habitually above the par of natural excitement. The pulse was always sharper, harder, and more frequent than is common in health; there was also a perceptible thrill of the aneurismatic kind to be felt in all the principal trunks, even of the limbs. The entonic character of action had become constitutional, and was participated by the vascular series every where, and that habit, the usual forerunner of change of capacity, was marked by its common results. The action of dilatation was traceable in most of the greater channels of distribution; but it was in the right carotid, and its branches, that superaction and dilatation were prominently displayed. For this speciality of morbid action and change it is difficult to find an explanation. Enlargement was regular, uniform, and proportionate through the series, from the root in the innominatum to the terminal branches, yet the arterial tissue seemed every where natural—no form of disease or decay in the texture of the coats.

Another phenomenon presented by this case is of difficult solution. It is interesting to know the cause of pulsation so distinct and constant in the sacculated extremities of the facial or angular veins, the superficial veins of the forehead. Was the pulsation at the points in question the effect of successive impulses commencing at the heart, whose momentum was propagated reversely through the descending blood, or the result of a plethoric state of the whole venous system of the head, produced and maintained by habitual overaction of the heart and cephalic arteries? The more distinct statement of those questions would be, first, whether from excessive action of the heart, the ventricles particularly, the return blood of the head was in some degree checked or intercepted at the right auricle, and by the same forcible contractions a successive movement of repercussion or undulation was imparted to the column of fluid resting there, sufficient to be sensible or to give pulsation in the extreme vessels. If pulsation in the primary veins could be thus renewed in accordance with successive reaction, or a certain momentum thrown back by the ventricles, then the operation of the same power would serve to explain the primary change of condition, or the abnormal developments which those vessels had undergone at their extremities. That strong excitement or overaction of the heart may cause a degree of sensible repercussion in the descending venous series, appears to be established, if the statements are credible which we have on respectable authority, viz. that in high irritation of that organ all the superficial veins of the neck have been found beating visibly and palpably in concert with

the pulse. (Hall on Vascular Irritation.) The second branch of this question, is whether continued overaction of the heart and arteries was capable of producing a plethoric state of the brain, with such remora in the sinuses and venous system of the head, internal and external, as would occasion the momentum of the blood entering by the arteries to be communicated to the whole mass of fluid delayed in its return, and thus to fall with a special shock on the extreme veins. If the brain be incompressible, its venous system engorged, and the arteries of the head in full, or superaction, as the blood enters with pulsation, the stroke, in the given state of the veins and sinuses, must be every where imparted to the fluid of that system, giving a correspondent movement or successive undulation, terminating at the venous roots or origins. The sinuses, by their capacity, figure, and defence from strong membranes, are best fitted to resist impulsion of their contents, and thus to direct it toward the extreme branches. Now, a shock of this kind, scarcely palpable among the minute and subdivided terminal series in their normal state, might become very sensible, if at any point or points, by dilatation and anastomosis, many of these radicles came to terminate in one or more cysts. Something analogous obtains in *nævi materni*; the action of the small vessels of which those tumours are composed, would not be discriminated by the touch in their natural state, yet by some enlargement, and free communication in common receptacles or cells, pulsation becomes strongly revealed.

CASE VI.—*Amputation—Venous Hæmorrhage*.—A man was received into the Baltimore Alms-house, October, 1850, with chronic inflammation, swelling, and suppuration of the left knee-joint. The local affection resisted all treatment, topical and general, a deep sloughy fistula, communicating with the articular cavity, opened above the inner hamstring; symptomatic fever was urgent and unremitting, diarrhœa supervened, and the patient fell rapidly toward a crisis of perilous lowness. In this state of things amputation was the only resort. The limb was separated as low down as the condition of parts permitted. The weakness of the patient rendered it important to save his blood as much as possible, so that after dividing the bone, every artery was sought for and tied before the tourniquet was relaxed. When, after securing all the arteries that could be found, the tourniquet was loosed sufficient to show pulsation at the loops of the ligatures, not a single artery was sprung, nor a jet of florid blood visible, but a sudden gush of black blood from the great vein, rendered it necessary instantly to draw the tourniquet close.

An attempt was then made to discover whether such compression as the stump might bear in dressing would be sufficient to command the flow through the vein. For this purpose the soft parts were comprehended in both hands, and very firmly braced around the bone, after which the tourniquet was again cautiously loosed. The moment the ligature on the artery was observed to feel the returning current, the blood of the vein spouted in full stream to the distance of four or five inches from the face of the stump, unchecked by the closest grasp which could be made by the hands. It was now evident that ligature of the vein was indispensable. Its extremity was carefully insulated from every thing around, drawn out and tied. On now loosening the tourniquet, it was found that the hæmorrhagic disposition was assumed by all the secondary veins. Not one, but eight or ten streams of venous blood were projected to the distance of four or five inches, and in defiance of all compression, short of the tourniquet, continued to maintain their full projectile currents. Aware that *partial* compression by the band around the limb favours venous hæmorrhage, the tourniquet was thrown for a moment completely free, the limb raised vertically, and firmly grasped around the stump. Nothing was gained; the rush from the veins was undiminished and continuous, precisely as from arteries. It finally became necessary to apply ligatures to every vein of any size in the stump. In this manner eleven veins were tied up. We were for many days far from unconcerned about the possible consequences of the measure to which we had been forced, but the case went on without a single bad symptom which we could refer to the ligature of the veins. Owing to great exhaustion of the patient by symptomatic fever and diarrhœa contracted prior to operation, the parts about the stump did not cohere well, and a gleety suppuration for some time kept the wound open—indisposed to heal, and finally involved exfoliation from the end of the bone; but there was at no time signs of phlebitis, local irritation, or constitutional disorder, in any manner different from what might have happened had no vein been tied.

This was the first occasion among numerous amputations in which I had found it necessary to treat veins as arteries, and, notwithstanding the apparent harmlessness of the practice in this instance, would never stop veins by ligature where it was possible to avoid their employment.

*Baltimore, August, 1831.*